WHAT IS CLAIMED IS:

1. A process for producing a polyester resin comprising a dicarboxylic acid constitutional unit and a diol constitutional unit having a cyclic acetal skeleton, the process comprising:

an oligomerization step of mainly producing oligomers by subjecting a diol (A) having a cyclic acetal skeleton and an ester (D) to transesterification reaction under conditions simultaneously satisfying the following requirements (i) to (iv):

(i) a molar ratio, b/a, of 0 to 0.035, wherein a is a molar amount of the dicarboxylic acid constitutional unit in the ester (D) and b is a molar amount of free carboxyl group in the ester (D);

(ii) a molar ratio, c/a, of 0.05 to 0.60 at initial charge, wherein a is the same as defined above and c is a molar amount of the diol (A) having a cyclic acetal skeleton;

(iii) the following formula (I):

$$0 \leq (b/a) \times (c/a) \leq 0.003 \qquad (I)$$

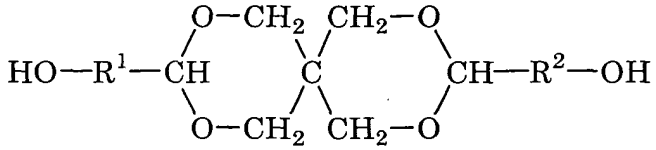
wherein a, b and c are as defined above; and

(iv) a water content of 0 to 0.5% by weight in the reaction system; and

a step of mainly polymerizing the oligomers to the polyester.

2. The process according to claim 1, wherein the diol (A) having a cyclic acetal skeleton is at least one diol selected from the group consisting of:

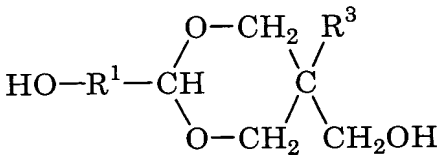
compounds represented by the following formula (1):



(1)

wherein R^1 and R^2 are each independently a divalent hydrocarbon group selected from the group consisting of C_1–C_{10} aliphatic hydrocarbon groups, C_3–C_{10} alicyclic hydrocarbon groups and C_6–C_{10} aromatic hydrocarbon groups; and

compounds represented by the following formula (2):



(2)

wherein R^1 is the same as defined above; and R^3 is a monovalent hydrocarbon group selected from the group consisting of C_1–C_{10} aliphatic hydrocarbon groups, C_3–C_{10} alicyclic hydrocarbon groups and C_6–C_{10} aromatic hydrocarbon groups.

3. The process according to claim 1, wherein the diol (A) having a cyclic acetal skeleton is 3,9-bis(1,1-dimethyl-2-hydroxyethyl)-2,4,8,10-tetraoxaspiro[5.5]undecane or 5-methylol-5-ethyl-2-(1,1-dimethyl-2-hydroxyethyl)-1,3-dioxane.

4. The process according to claim 1, wherein the ester (D) is an ester (D1) having an average polymerization degree of from 15 to 200 which is produced from a dicarboxylic acid (B) and a diol (C) having no cyclic acetal skeleton.

5. The process according to claim 1, wherein the ester (D) is an ester (D2) having an average polymerization degree of less than 15, a melting point of 240°C or lower, and a molar ratio of a diol constitutional unit to the dicarboxylic acid constitutional unit of 3.0 or less,

the ester (D2) being produced by depolymerizing an ester (D1) or a polyester resin (D11);

the ester (D1) having an average polymerization degree of 15 to 200 which is produced from a dicarboxylic acid (B) and a diol (C) having no cyclic acetal skeleton; and

the polyester resin (D11) being selected from the group consisting of polyethylene terephthalate, polybutylene terephthalate, polyethylene naphthalate, and polyethylene terephthalates copolymerized with isophthalic acid, 1,4-cyclohexane dimethanol, 3,9-bis(1,1-dimethyl-2-hydroxyethyl)-

2,4,8,10-tetraoxaspiro[5.5]undecane or 5-methylol-5-ethyl-2-(1,1-dimethyl-2-hydroxyethyl)-1,3-dioxane.

6. The process according to claim 1, wherein the ester (D) is produced in the presence of an orthoformic acid triester and/or a carbonic acid diester in an amount of 0.01 to 0.2 mol per one mole of the dicarboxylic acid constitutional unit.

7. The process according to claim 1, wherein the ester (D) is an ester (D3) that is produced by transesterifying a dialkyl ester (E) of a dicarboxylic acid (B) and an alcohol with a diol (C) having no cyclic acetal skeleton.

8. The process according to claim 1, wherein the ester (D) is bis(β-hydroxyethyl)terephthalate.

9. The process according to claim 1, wherein the ester (D) is at least one ester selected from the group consisting of esters (D1), esters (D2), esters (D3) and bis(β-hydroxyethyl)terephthalate,

the esters (D1) having an average polymerization degree of from 15 to 200 which is produced from a dicarboxylic acid (B) and a diol (C) having no cyclic acetal skeleton;

the esters (D2) having an average polymerization degree of less than 15, a melting point of 240°C or lower, and a molar ratio of a diol constitutional unit to the dicarboxylic acid constitutional unit of 3.0 or less, which is produced by depolymerizing an ester (D1) or a polyester resin (D11) wherein the ester (D1) has an average polymerization degree of 15 to 200 and is produced from a dicarboxylic acid (B) and a diol (C) having no cyclic acetal skeleton, and the polyester resin (D11) is selected from the group consisting of polyethylene terephthalate, polybutylene terephthalate, polyethylene naphthalate, and polyethylene terephthalates copolymerized with isophthalic acid, 1,4-cyclohexane dimethanol, 3,9-bis(1,1-dimethyl-2-hydroxyethyl)-2,4,8,10-tetraoxaspiro[5.5]undecane or 5-methylol-5-ethyl-2-(1,1-dimethyl-2-hydroxyethyl)-1,3-dioxane.

10. The process according to claim 1, further comprises a step of molding the polyester resin into shaped articles.